

MASTER'S THESIS PRESENTATION

Testing Overdispersion in the Analysis of Alternative Polyadenylation. A Theoretical and Empirical Study under Dirichlet-Multinomial Framework

WHEN April 25,
2022 11:00AM

WHERE
Jones Laboratory, Room 303



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Alternative polyadenylation (APA) is a process of mRNA maturation that resulting increased diversity of mRNA isoforms and contributing to the complexity of gene regulatory network, and the single cell RNA sequencing (scRNA-seq) technologies provide us opportunities to investigate biological details of diverse and rare cell types. In this paper I conducted a hypothesis testing scheme that testing the overdispersion in APA data. I derived the theoretical framework of overdispersion testing for APA data under Dirichlet-Multinomial assumption, and established the related likelihood ratio test (LRT) for empirical usage. I then apply the real APA data to test the overdispersion via the proposed LRT method and also compared with Pearson's chi-squared test.

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